

The initials W. J. C., A. C., W. C., and S. J. P., are those of the observers William Crofton, Aloysius Cortie, William Carlisle, and Stephen Joseph Perry.

*Stonyhurst Observatory:*  
1888, February 16.

*Occultations observed at Harrow during the Total Eclipse of the Moon, 1888, January 28. By G. L. Tupman.*

Every precaution was taken to ensure success on this occasion, but fleecy clouds and haze and the unexpected brightness of the Moon rendered the smaller stars quite invisible.

General Tennant very kindly came over and observed with the 18-inch mirror, using the chronograph to register the times. He says:—

“Very soon after totality commenced the sky near the Moon was clouded, and from that time, although the Moon’s limb was generally visible, stars were rarely so. From what was seen, it was evident that the Moon was very bright and white in colour, even on the limb near the centre of the shadow (the other limb was much brighter), and that the smaller stars could not have been seen in contact with the limb. Indeed, at the disappearance of No. 166 and No. 164 each was thought to be gone some 3<sup>s</sup> before the times noted, but a re-examination showed that they were still on the limb though hardly distinguishable.”

I looked at the Moon for a minute or two, with the large reflector, half an hour after the commencement of totality. Not a star was to be seen near it. I do not agree with General Tennant that the Moon was white; to me it was very red, although less red in the telescope than with the unaided eye.

The following are the times as read from the chronograph fillet; they should be diminished 0<sup>s</sup>.3 or 0<sup>s</sup>.4:—

Star.	Clock.	Local Sidereal Time.			Greenwich Mean Time.		
		h	m	s	h	m	s
157	Im. 7 3 17.2	7	2	26.65	10	33	15.9
166	Im. 7 8 18.5	7	7	27.95	10	38	16.4
164	Im. 7 9 25.2	7	8	34.65	10	39	22.9
164	Em. 8 24 0.0	8	23	9.45	11	53	45.5
180	Em. 8 34 23.3	8	33	32.75	12	3	7.1*

\* This was seen as a bright speck on the limb at this moment; but the limb was only seen clearly for a few seconds, and before the observation could be verified it was dulled by the mist.—J. F. T.

I observed for local time the same evening with the meridian circle :—

					Clock Correction.
					<sup>s</sup>
5	Ursæ	Min.,	S.P. (one wire only)	...	... -50 <sup>s</sup> ·25
8	Ceti	...	...	...	... -50 <sup>s</sup> ·52
θ	Persei	...	...	...	... -50 <sup>s</sup> ·41
δ	Geminorum	...	...	...	... -50 <sup>s</sup> ·60
Daily rate of clock					... -0 <sup>s</sup> ·58

The coordinates of the observatory are : Lat.  $51^{\circ} 34' 47''.4$  N.; Long. (W. of Greenwich)  $1^m 19^s.85$ ; height above mean sea level, 220 feet.

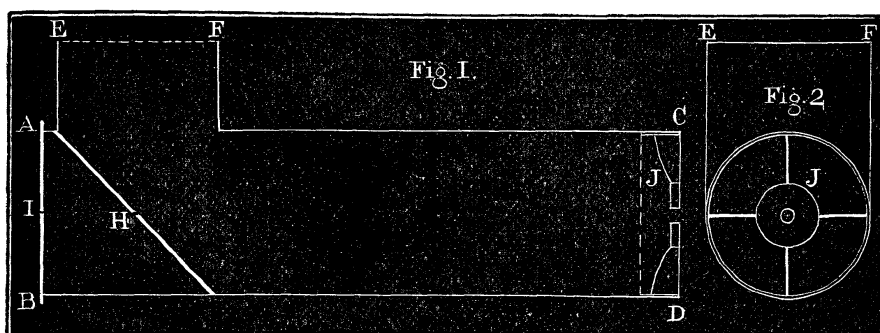
*Note by General Tennant.*—The peculiarity (for I seem to have been singular) in my estimation of the colour of the Moon during eclipse is probably due to the eye. In vol. xxix. p. 106, of the *Notices*, will be found a note that red stars did not produce on my eye the impression of marked colour. This especially refers to the right eye used in these observations.

### *An Improved Centering Tube for Reflecting Telescopes.*

By Edward Crossley, M.P.

In the *Monthly Notices* for March 1887 I gave a description of a new centering tube for reflecting telescopes. I have since much improved its construction so as to make it more easily used and more accurate.

It consists of a tube A B C D, figs. 1, 2, 10 inches long,  $2\frac{5}{8}$  inches in diameter, with an open elbow E F. Opposite this elbow is placed a plane reflector, A G, perforated at H. A surface of bright tin answers well. In the centre at A B is the pin hole I. At C D is placed a perforated disc, J, 1 inch in diameter, with  $\frac{1}{4}$ -inch hole, attached to a rim by four arms placed edgewise; the rim slides into the tube. It is used in the following manner :—



The tube is placed in the eyepiece end or holder of the telescope, to which it is a nice fit; and looking through I H and the